In the Claims

Claims are amended as follows:

1. (currently amended) A method for determining the connectivity of nodes in a communication network comprising a plurality of interconnected nodes, the method comprising:

_____transmitting into the network a signal from each node, the signal from each node constituting ~~a~~ signature data unique to that node~~, detecting;~~

_____receiving unique signature data from every ~~transmitter and receiver~~ node at a network manager controlling the network~~,~~ ; and

_____correlating the ~~detected~~ received data at the network manager to determine the physical connectivity of the nodes of the network ;

_____wherein the method further comprises each node reporting to the network manager both unique signature data transmitted from that node into the network and unique signature data received at that node from another node, wherein a node that was previously receiving valid unique signature data from another node does not report reception of invalid signature data to thereby prevent the network manager effecting changes to the connectivity of the nodes under a fault condition.

2. (cancelled)

3. (cancelled)

4. (currently amended) A method as claimed in Claim [[2]] 1, further comprising the step wherein under circumstances in which a node has not detected ~~a~~ unique signature data matching ~~a~~ transmitted signature data, the network manager creates an off-network pointer for the said node.

5. (currently amended) A method as claimed in Claim [[2]] 1, further comprising the steps of establishing a unidirectional trail in the network manager from a second node to a first node when the first node detects the unique signature data of the second node; establishing a unidirectional trail in the network manager from the first node to the second node when the second node detects the unique signature data of the first node; and thereby establishing a bidirectional trail between the first node and the second node.

6. (currently amended) A communication network comprising a plurality of interconnected nodes, ~~the network provided with means for determining the connectivity of said nodes, comprising a~~ each node having a transmitter ~~per node~~ for transmitting into the network a signature signal ~~from each node~~, the signal constituting ~~a~~ signature data unique to that node, a detector ~~per node~~ for detecting unique signature data received at ~~each~~ said node from another node and means for reporting the unique signature data transmitted from that node into the network and the unique signature data received at that node from another node to a network manager controlling the network, ~~and~~ the network manager having a correlator for correlating the ~~detected~~ unique signature data received from all of the nodes to determine the physical connectivity of the nodes of the network, wherein a node that was previously receiving valid unique signature data from another node is arranged to not report reception of invalid signature data to the network manager to thereby prevent the network manager effecting changes to the connectivity of the nodes under a fault condition.

7. (cancelled)

8. (cancelled).

9. (currently amended) A communication network as claimed in Claim [[2]] 6, further comprising off-network pointer creating means whereby, when a node has not

detected ~~a~~ unique signature data matching a transmitted signature data, the network manager creates an off-network pointer for the said node.

10. (currently amended) A communication network as claimed in Claim [[2]] 6, further comprising trail establishing means ~~whereby to establish~~ for establishing a unidirectional trail in the network manager from a second node to a first node when the first node detects the unique signature of the second node; ~~establish~~ establishing a unidirectional trail in the network manager from the first node to the second node when the second node detects the unique signature of the first node; and thereby ~~to establish~~ establishing a bidirectional trail between the first node and the second node.

11. (original) A communication network as claimed in Claim 6, wherein the network is an optical communication network.

12. (currently amended) A network manager for a communication network, the communication network comprising a plurality of interconnected nodes, the network manager provided with correlator means for determining the connectivity of said nodes in response to detection at each node of unique signature signals transmitted into the network from each node, said correlator means adapted to correlate the detected unique signature signals to determine the physical connectivity of the network, wherein the network manager is arranged to control a node that was previously receiving valid unique signature data from another node to not report reception of invalid signature data to thereby prevent the network manager effecting changes to the connectivity of the nodes under a fault condition.

13. (currently amended) A computer readable media carrying a computer program for a computing system to enable said system to determine the connectivity of nodes in a communication network comprising a plurality of interconnected nodes ~~adapted to perform the method of Claim 1~~, the computer program comprising:

program code for transmitting into the network a signal from each node, the signal from each node constituting signature data unique to that node;

program code for receiving unique signature data from every node at a network manager controlling the network ; and

program code for correlating the received data at the network manager to determine the physical connectivity of the nodes of the network;

wherein the computer program further comprises program code for each node to enable it to report to the network manager both unique signature data transmitted from that node into the network and unique signature data received at that node from another node, wherein a node that was previously receiving valid unique signature data from another node does not report reception of invalid signature data to thereby prevent the network manager effecting changes to the connectivity of the nodes under a fault condition.

14 to 16. (cancelled)

17. (new) A network element for a communication network comprising a plurality of interconnected network elements, said network element having a transmitter for transmitting into the network a signature signal, the signal constituting signature data unique to that network element, a detector for detecting unique signature data received at said network element from another network element and means for reporting the unique signature data transmitted from that network element into the network and the unique signature data received at that network element from another network element to a network manager controlling the network, wherein the network element is arranged upon reception of invalid signature data to not report reception of said invalid signature data to the network manager to thereby prevent the network manager effecting changes to the connectivity of the networks under a fault condition.